

REMARKS

4. On page 4 of the specification, the fourth full paragraph (lines 18-23) has been amended. In particular, on the word “therebetween” has been deleted and the language “between the entire rear face of cavity 34 and recess 32” has been added. The paragraph now reads, in part, “The recess 32 is designed to receive the rear face 36 of the mold cavity shell 10 such that a heat transfer passage 39 is formed between the entire rear face of cavity 34 and recess 32 for air flow for cooling and heating mold cavity portion 13.”

The applicant cites to various portions of the specification and drawings to support the added language. The specification states, at page 4, lines 30-32, that “The structural enhancement ribs 38 are designed so that air can still pass between the rear face of the mold shell 36 and the mold holder recess 32 for even heating and cooling”. Additionally, the specification states, at page 6, lines 20-22, that the “Cooling or reheating occurs by entry of air through air inlet(s) 40, which circulates between rear face 36 and recess 32, and exits through air outlet(s) 41.”

In further support of this amendment to the specification are the figures. Figure 1-3 show the mold cavity shell 10 that is received in the mold holder 12. Also, FIG. 5 shows an elevational view of the mold components, and shows the recess 32 is designed to receive the rear face 36 of the mold cavity shell 10, and FIG. 6 shows the heat transfer passage 39.

Therefore, applicant believes that it has been shown that there is adequate support in the specification and drawings to support the above-described amendment to the specification. As such applicant respectfully requests the amendment to the specification be entered. Additionally, because there is support in the specification and drawings for the amendment, applicant does not believe that new matter is being added to the application.

5. Claims 17-24 are new claims. In particular, the Examiner objected to claims 2-3 and 7-12 as being dependent on a rejected base claim, but would be allowable if rewritten in independent form to include all the limitations of the base claim and intervening claims. Applicant has followed the Examiner’s suggestion, and new claims 17-24 are submitted.

New claim 17 includes the subject matter from originally filed claim 1 plus originally filed claim 2. New claim 18 brings in the subject matter of originally filed claim 3.

New claim 19 brings in the subject matter of originally filed claims 1, 6, and 7, and new claim 20 brings in the subject matter of originally filed claim 8.

New claim 21 brings in the subject matter of originally filed claims 1 and 9, and new claim 22 brings in the subject matter of originally filed claim 10.

New claim 23 brings in the subject matter of originally filed claims 1 and 11, and new claim 24 brings in the subject matter of originally filed claim 12.

Thus, the applicant has included new claims that the Examiner has indicated would be allowable. Applicant respectfully requests that new claims 17-24 be allowed.

6. Claims 1, 13, and 15 were rejected under 35 U.S.C. §102 (b) as being anticipated by Noda. Noda discloses a porous die 1 composed of a porous die body 2 attached to a frame 3. The backside of the porous die body 2 is supported and reinforced by the reinforcing sheet 12 through connecting tension bolts 15 and compression bolts 16, "which are provided at important positions." (Col 3, line 9). A coolant is circulated between the back side of the reinforcing sheet 12 and the side plate 14 in circulation chambers 19. Air enters the cooling chamber 17 through the pores 9 in the die body 2 and through the holes 20 in the backside of the frame 12. A parison 31 is poured between the dies 1 and air is blown into the parison 31 and air is sucked out of the cooling chamber 17.

Amended claim 1 now recites "the mold holder defining an inner wall spaced from the entire rear face of the mold cavity portion to define a heat transfer passage between said inner wall and said cavity portion." A heat transfer passage between the entire rear face of the cavity and recess provides for a clear space between the two so that the undisturbed flow of heat transfer fluid can occur therebetween. This is not disclosed in Noda, and as such Noda is not believed to anticipate amended independent claim 1 and claims 13 and 15 which depend therefrom.

Applicant respectfully requests the rejection of claims 1, 13, and 15 be reconsidered and withdrawn, and that these claims be allowed.

With respect to the obviousness based rejections , there are features of the claimed invention which distinguish over the prior art. First, there is a space between the entire rear face of the mold cavity and the adjacent mold holder recess, so that undisturbed heat transfer can occur between the two. As will be described presently, the prior art calls for various structures to support the rear face of the mold cavity and these structures interfere with heat transfer characteristics. Also, the cited references show bolts that affect the flow of coolant. Additionally, the claimed invention allows heat transfer fluid to be directed to the rear face of the mold cavity in any manner or direction desired.

Turning now to the specific rejections, claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Noda in view of Inglesby. Noda has been previously described. Inglesby discloses an apparatus for making plastic bottles, and has an upper half 12 and lower half 10 hinged together, and wherein the upper half 12 is a complementary replica of the lower half 10. The shell or mold 28 may be an epoxy aluminum mixture. The mold 28 is filled through inlet 74 with a transfer liquid 18, and the fill opening 74 is sealed, generating an inward pressure on the mold. When the mold experiences the outward pressure of inflation, “the shell and its trapped water filling is firm and unyielding, and prevents the inflation pressure from deforming the mold.” (Col. 3, lines 49-51)

Claim 6 now depends from the previously discussed amended claim 1 which is now believed to be in allowable form, and as such claim 6 is now believed to be allowable.

Additionally, Inglesby is significantly different from amended claim 1 that recites the “mold holder defining an inner wall spaced from the entire rear face of the mold cavity portion to define a heat transfer passage between said inner wall and said cavity portion.” In Inglesby the shells 28 must be supported by the pressure of the transfer liquid 18. (see Col. 3, lines 45-51). The transfer fluid 18 does not flow, rather as the mold is filled and emptied each filling delivers heat to the transfer liquid 18. This heat is then removed by a coil 29. But, since the transfer liquid 18 does not flow there is no control of localized cooling provided for. Thus, the present claimed invention is different from Inglesby because a heat transfer passage is provided for between the entire rear face of the mold cavity portion to define a heat transfer passage between the inner wall and cavity portion. Also, the claimed invention is better than Inglesby because Inglesby fails to provide a way to control localized cooling.

Thus, applicant respectfully requests the obviousness based rejection of claim 6 be withdrawn and that claim 6 be allowed.

Claim 14 was rejected as being obvious over Noda in view of Briere et al. Briere et al. shows a blow molding device formed from subassemblies comprising a shell 7 provided with half impressions, and a shell holder 9 that supports the shell 7. The shell holder 9 is fastened to a mold carrier 3. The patent discloses a mold bottom 25. The patent also shows that the shell holder has pipes 11 with internal fittings for circulating a fluid.

Claim 14 now depends from amended claim 1 that recites the “mold holder defining an inner wall spaced from the entire rear face of the mold cavity portion to define a heat transfer passage between said inner wall and said cavity portion.” Briere et al. and Noda are different and do not show or teach this. Thus, because claim 14 now depends from a claim believed to be allowable, applicant respectfully requests the rejection of claim 14 be withdrawn and the claim be allowed .

Claim 16 was rejected as being obvious over Noda in view of Nakamura which is for plastic heels for shoes and boots. Noda discloses the reinforcing frame is made of zinc alloy (ZAS). The Examiner cites to Nakamura which discloses a zinc-aluminum-tin alloy for a mold and calls the alloy ZAS. The Examiner states he “considers ZAS to satisfy the aluminum requirement” of claim 16 and that Nakamura is being used to solidify the rejection. No reference showing a mold made only of aluminum is shown, rather the cited references show zinc alloys. It appears that the Examiner is relying on personal knowledge to form the basis of this rejection because the Examiner states “For the record the examiner considers ZAS to satisfy the aluminum requirement.” Applicant respectfully requests the Examiner provide a 37 C.F.R. §1.104(d)(2) affidavit in support of his position that ZAS satisfies the aluminum requirement.

Also, claim 16 depends from amended claim 1 which is now believed to be allowable. Applicant respectfully requests reconsideration, and that the rejection of claim 16 be withdrawn and that the claim be allowed.

Also, claims 4 and 5 were rejected as being obvious over Noda in view of Japanese reference JP 05112887, for which no full English translation was provided. Claims 4 and 5 depend from amended claim 1, and as such are now believed to be allowable.

Additionally, the translated abstract of the Japanese reference discloses the following:

a matrix is covered with a non-conductive mask where no hole is needed at spot B,
a vent hole is formed in spot A where a hole is demanded,
a second electrocast layer is formed in spot B where no hole is demanded,
a third electrocast layer formed in spot B where no hole is demanded,
no vent hole formed in a spot where no vent hole is demanded, and
a “back reinforcing member” fixed in a spot where no hole is demanded.

The Examiner states this reference “discloses a plurality of reinforcement ribs (11, 41, 44) on the back of an electroformed blow molding shell.” Applicant respectfully disagrees with the Examiner’s interpretation of this reference. The abstract specifically and repeatedly refers to spot B as being the place where “no hole is demanded,” and then goes on to state the advantage/use of this spot as being “a back reinforcing member is easily affixed to the spot where no hole is demanded.” (abstract translation, page 2, lines 25-26). The figures of the Japanese reference show bolts/fasteners connecting between spot B on the shell and the mold holder.

This structure is quite different from the claimed invention. In amended claim 1, the mold holder defines an inner wall spaced from the entire rear face of the mold cavity portion. The Japanese reference does not show or teach this, but rather shows reinforcing members connecting between the shell and mold holder as in FIG. 10. Noda also shows the use of compression and tension bolts 16, 15.

Thus, the claimed invention has different structure from the Noda and Japanese references, making it patentably distinct. Also, because the claimed invention allows for flow of heat transfer fluid directed to the rear face of the mold cavity in any manner or pattern desired, there is full control of localized heat transfer, and this is not disclosed in Noda and the Japanese reference. Thus, because of these structural differences between the claimed invention and the cited references, and because the claimed invention is better able to allow for the flow of heat transfer fluid than the cited references, applicant respectfully requests the reconsideration of the rejection of claims 4 and 5 and that these claims be allowed.

7. Thus, applicant respectfully requests entry of the amendments to the specification, allowance of the new claims, and reconsideration and allowance of the rejected claims.

8. The Commissioner is hereby authorized to charge any fees owed under 37 C.F.R. §1.16 and 1.17 that may be required by this paper to Deposit Account No. 08-2442.

Respectfully submitted,



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